



**University of  
Zurich**<sup>UZH</sup>

**Zurich Open Repository and  
Archive**

University of Zurich  
University Library  
Strickhofstrasse 39  
CH-8057 Zurich  
[www.zora.uzh.ch](http://www.zora.uzh.ch)

---

Year: 2017

---

## **Draft genome sequence of *Staphylococcus aureus* 1608, a strain that caused toxic mastitis in twin cows**

Stevens, M J A ; Stephan, Roger ; Johler, Sophia

Abstract: *Staphylococcus aureus* 1608 is a strain that caused a lethal mastitis in cows. Here, the draft genome sequence of the strain is presented.

DOI: <https://doi.org/10.1128/genomeA.01438-16>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-148863>

Journal Article

Published Version



The following work is licensed under a Creative Commons: Attribution 4.0 International (CC BY 4.0) License.

Originally published at:

Stevens, M J A; Stephan, Roger; Johler, Sophia (2017). Draft genome sequence of *Staphylococcus aureus* 1608, a strain that caused toxic mastitis in twin cows. *Genome Announcements*, 5(1):e01438-16.

DOI: <https://doi.org/10.1128/genomeA.01438-16>



# Draft Genome Sequence of *Staphylococcus aureus* 1608, a Strain That Caused Toxic Mastitis in Twin Cows

Marc J. A. Stevens,<sup>a</sup> Roger Stephan,<sup>b</sup> Sophia Johler<sup>b</sup>

Laboratory of Food Biotechnology, Institute of Food, Nutrition and Health, ETH Zurich, Zurich, Switzerland<sup>a</sup>;  
Institute for Food Safety and Hygiene, Vetsuisse Faculty, University of Zurich, Zurich, Switzerland<sup>b</sup>

**ABSTRACT** *Staphylococcus aureus* 1608 is a strain that caused a lethal mastitis in cows. Here, the draft genome sequence of the strain is presented.

**B**ovine mastitis results in substantial financial losses for the dairy industry. *Staphylococcus aureus* can cause subclinical, acute, or chronic bovine mastitis and has recently been linked to “toxic mastitis,” which typically combines mastitis symptoms and clinical signs of toxemia (1–3). In this study, we present the complete genome sequence of *S. aureus* 1608. A case report detailing the clinical findings and DNA microarray data has already been published (4). On 3 December 2013, the strain was isolated from a mastitis milk sample of a Simmental cow in Switzerland. The cow suffered from characteristic signs of toxic mastitis, including anorexia, pyrexia (41.5°C), an elevated heart rate, and a swollen hardened mammary gland exhibiting brownish secretions. Due to rapid deterioration of the clinical state of the animal, it had to be euthanized within 48 h after presentation. *S. aureus* strain 1608 was assigned to *agr* type I, capsule type 5, and clonal complex 97 (CC97) (4).

The genome of strain 1608 was sequenced using Illumina MiSeq 125-bp paired-end sequence technology. The raw reads were paired in the CLC Genomics Workbench 8.0, resulting in 1,411,718 reads with a mean size of 250 bp. The reads were assembled in CLC Genomics Workbench 8.0 using standard settings, which resulted in 34 contigs with sizes between 3,142 and 318,947 bp.

The genome was estimated at 2.73 Mbp and annotated by the NCBI Prokaryotic Genome Annotation Pipeline. It contains 2,772 protein-coding sequences, and the G+C content of the genome is 32.1%. The genome content of *Staphylococcus aureus* 1608 could contribute to the identification of factors causing toxic mastitis in cattle.

**Accession number(s).** Sequence and annotation data of *S. aureus* strain 1608 were deposited in the GenBank database with the accession number [MKYV00000000](https://doi.org/10.1128/genomeA.01438-16).

## REFERENCES

1. Andrews AH, Blowey RW, Boyd H, Eddy RG. 1992. Bovine medicine: diseases and husbandry of cattle. Blackwell Scientific Publications, Oxford, United Kingdom.
2. Bleul U, Sacher K, Corti S, Braun U. 2006. Clinical findings in 56 cows with toxic mastitis. *Vet Rec* 159:677–679. <https://doi.org/10.1136/vr.159.20.677>.
3. Menzies FD, McBride SH, McDowell SWJ, McCoy MA, McConnell W, Bell C. 2000. Clinical and laboratory findings in cases of toxic mastitis in cows in Northern Ireland. *Vet Rec* 147:123–128. <https://doi.org/10.1136/vr.147.5.123>.
4. Rüeggsegger F, Corti S, Sihto H-M, Johler S. 2014. Toxic bovine mastitis caused by *Staphylococcus aureus* in twin cows. *Schweiz Arch Tierheilkd* 156:539–542. <https://doi.org/10.1024/0036-7281/a000644>.

**Received** 26 October 2016 **Accepted** 1 November 2016 **Published** 5 January 2017

**Citation** Stevens MJA, Stephan R, Johler S. 2017. Draft genome sequence of *Staphylococcus aureus* 1608, a strain that caused toxic mastitis in twin cows. *Genome Announc* 5:e01438-16. <https://doi.org/10.1128/genomeA.01438-16>.

**Copyright** © 2017 Stevens et al. This is an open-access article distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/).

Address correspondence to Sophia Johler, [sophia.johler@uzh.ch](mailto:sophia.johler@uzh.ch).